

# **EMPIRICAL STUDY of TWO ASPECTS of THE**

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**EMPIRICAL STUDY of TWO ASPECTS of THE  
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*PRE-DECISIONAL: For Internal & DOJ Comments Only*

2021-05-18

Tommy Wright and Kyle Irimata  
Center for Statistical Research and Methodology  
Research and Methodology Directorate  
U.S. Bureau of the Census  
Washington, D.C. 20233

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*Corresponding author for comments:* [tommy.wright@census.gov](mailto:tommy.wright@census.gov); (301) 763-1702.

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ANSWER: *“for any block group with a TOTAL count near 600 people, the difference between the TDA ratio of the largest demographic group (LDG) and the corresponding SWA ratio for the LDG is less than or equal to 5 percentage points at least 95% of the time”.*

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- No congressional or state legislative district failed our test for reliability.

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FINDINGS: As we reported in [5], relative variability in the *TDA* increases as we consider smaller pieces of geography and population.

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Our comparisons are facilitated by the **difference of ratios** *DR*.



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When  $DR_g$  is sufficiently small, we say that the  $C_{TDA}(g)$  count (or ratio) provides a **reliable characteristic** for the block group.

**Table 1a: Block Group 240317044041 (564 HUs) Characteristics**  
( $C_{TDA}(g)$  counts result from 2021-04-28 version of the *TDA*.)

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Demographic Group ( $g$ ) <sup>b</sup>	$C_{SWA}(g)$	$C_{TDA}(g)$	$DR_g = \left  \frac{C_{SWA}(g)}{C_{SWA}} - \frac{C_{TDA}(g)}{C_{TDA}} \right $



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TOTAL	1,560		

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TOTALNH	1,427	1,448	$\left  \frac{1,427}{1,560} - \frac{1,448}{1,587} \right  = 0.0023$



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WHITENH	1,169	1,185	$\left  \frac{1,169}{1,560} - \frac{1,185}{1,587} \right  = 0.0027$
BLACKNH	36	61	$\left  \frac{36}{1,560} - \frac{61}{1,587} \right  = 0.0154$

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TOTAL18	1,198	1,209	
TOTALHISP	133	139	$\left  \frac{133}{1,560} - \frac{139}{1,587} \right  = 0.0023$
TOTALNH	1,427	1,448	$\left  \frac{1,427}{1,560} - \frac{1,448}{1,587} \right  = 0.0023$
WHITENH	1,169	1,185	$\left  \frac{1,169}{1,560} - \frac{1,185}{1,587} \right  = 0.0027$
BLACKNH	36	61	$\left  \frac{36}{1,560} - \frac{61}{1,587} \right  = 0.0154$
AIANNH	10	9	$\left  \frac{10}{1,560} - \frac{9}{1,587} \right  = 0.0007$
ASIANNH	187	182	$\left  \frac{187}{1,560} - \frac{182}{1,587} \right  = 0.0052$
HPINH	5	1	$\left  \frac{5}{1,560} - \frac{1}{1,587} \right  = 0.0026$
OTHERNH	11	1	$\left  \frac{11}{1,560} - \frac{1}{1,587} \right  = 0.0064$
MLTMNNH	9	9	$\left  \frac{9}{1,560} - \frac{9}{1,587} \right  = 0.0001$

**Table 1a: Block Group 240317044041 (564 HUs) Characteristics**  
**( $C_{TDA}(g)$  counts result from 2021-04-28 version of the  $TDA$ .)**

Demographic Group ( $g$ ) <sup>b</sup>	$C_{SWA}(g)$	$C_{TDA}(g)$	$DR_g = \left  \frac{C_{SWA}(g)}{C_{SWA}} - \frac{C_{TDA}(g)}{C_{TDA}} \right $
TOTAL	1,560	1,587	
TOTAL18	1,198	1,209	
TOTALHISP	133	139	$\left  \frac{133}{1,560} - \frac{139}{1,587} \right  = 0.0023$
TOTALNH	1,427	1,448	$\left  \frac{1,427}{1,560} - \frac{1,448}{1,587} \right  = 0.0023$
WHITENH	1,169	1,185	$\left  \frac{1,169}{1,560} - \frac{1,185}{1,587} \right  = 0.0027$
BLACKNH	36	61	$\left  \frac{36}{1,560} - \frac{61}{1,587} \right  = 0.0154$
AIANNH	10	9	$\left  \frac{10}{1,560} - \frac{9}{1,587} \right  = 0.0007$
ASIANNH	187	182	$\left  \frac{187}{1,560} - \frac{182}{1,587} \right  = 0.0052$
HPINH	5	1	$\left  \frac{5}{1,560} - \frac{1}{1,587} \right  = 0.0026$
OTHERNH	11	1	$\left  \frac{11}{1,560} - \frac{1}{1,587} \right  = 0.0064$
MLTMNNH	9	9	$\left  \frac{9}{1,560} - \frac{9}{1,587} \right  = 0.0001$
HISP18	93	92	$\left  \frac{93}{1,198} - \frac{92}{1,209} \right  = 0.0015$
NONHISP18	1,105	1,117	$\left  \frac{1,105}{1,198} - \frac{1,117}{1,209} \right  = 0.0015$
WHITENH18	914	919	$\left  \frac{914}{1,198} - \frac{919}{1,209} \right  = 0.0028$
BLACKNH18	29	42	$\left  \frac{29}{1,198} - \frac{42}{1,209} \right  = 0.0105$
AIANNH18	8	9	$\left  \frac{8}{1,198} - \frac{9}{1,209} \right  = 0.0008$
ASIANNH18	142	140	$\left  \frac{142}{1,198} - \frac{140}{1,209} \right  = 0.0027$
HPINH18	2	1	$\left  \frac{2}{1,198} - \frac{1}{1,209} \right  = 0.0008$
OTHERNH18	6	1	$\left  \frac{6}{1,198} - \frac{1}{1,209} \right  = 0.0042$
MLTMNNH18	4	5	$\left  \frac{4}{1,198} - \frac{5}{1,209} \right  = 0.0008$

**Table 1b: Block Group 110010047012 (1,709 HUs) Characteristics**  
 ( $C_{TDA}(g)$  counts result from 2021-04-28 version of the  $TDA$ .)

Demographic Group ( $g$ )	$C_{SWA}(g)$	$C_{TDA}(g)$	$DR_g = \left  \frac{C_{SWA}(g)}{C_{SWA}} - \frac{C_{TDA}(g)}{C_{TDA}} \right $
TOTAL	2,875	2,902	
TOTAL18	2,261	2,280	
TOTALHISP	92	116	0.0080
TOTALNH	2,783	2,786	0.0080
WHITENH	541	529	0.0059
BLACKNH	1,686	1,697	0.0017
AIANNH	12	3	0.0031
ASIANNH	515	522	0.0007
HPINH	1	1	0.0000
OTHERNH	3	6	0.0010
MLTMNNH	25	28	0.0010
HISP18	86	100	0.0058
NONHISP18	2,175	2,180	0.0058
WHITENH18	529	519	0.0063
BLACKNH18	1,151	1,167	0.0028
AIANNH18	12	3	0.0040
ASIANNH18	460	465	0.0005
HPINH18	1	1	0.0000
OTHERNH18	3	6	0.0013
MLTMNNH18	19	19	0.0001

**CHARACTERISTICS  
of TWELVE MORE BLOCK GROUPS**

Demographic Group (g)	Block Group 483019501001 (TX) <sup>c</sup>			Block Group 010599729001 (AL)			Block Group 010059507002 (AL)			Block Group 040030008001 (AZ)		
	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>
<b>TOTAL</b>	82	<b>77</b>		500	<b>520</b>		1,000	<b>1,001</b>		1,500	<b>1,542</b>	
<b>TOTAL18</b>	73	<b>75</b>		386	<b>407</b>		745	<b>743</b>		1,035	<b>1,058</b>	
<b>TOTALHISP</b>	18	<b>11<sup>2</sup></b>	<b>0.0767</b>	18	<b>37<sup>2</sup></b>	<b>0.0352</b>	30	<b>32<sup>3</sup></b>	<b>0.0020</b>	1,237	<b>1,274<sup>1</sup></b>	<b>0.0015</b>
TOTALNH	64	66	0.0767	482	483	0.00352	970	969	0.0020	263	268	0.0015
WHITENH	60	<b>57<sup>1</sup></b>	<b>0.0086</b>	455	<b>462<sup>1</sup></b>	<b>0.0215</b>	306	<b>309<sup>2</sup></b>	<b>0.0027</b>	235	<b>233<sup>2</sup></b>	<b>0.0056</b>
BLACKNH	0	0	0.0000	7	<b>12<sup>3</sup></b>	<b>0.0091</b>	659	<b>650<sup>1</sup></b>	<b>0.0096</b>	10	11	0.0005
AIANNH	4	0	0.0488	6	6	0.0005	4	1	0.0030	0	3	0.0019
ASIANNH	0	<b>2<sup>3</sup></b>	<b>0.0260</b>	11	2	0.0182	0	8	0.0080	18	<b>15<sup>3</sup></b>	<b>0.0023</b>
HPINH	0	0	0.0000	0	0	0.0000	0	0	0.0000	0	2	0.0013
OTHERNH	0	0	0.0000	1	1	0.0000	0	0	0.0000	0	1	0.0006
MLTMNNH	0	7	0.0909	2	0	0.0040	1	1	0.0000	0	3	0.0019
HISP18	14	9	0.0718	10	22	0.0281	21	22	0.0014	807	821	0.0037
NONHISP18	59	66	0.0718	376	385	0.0281	724	721	0.0014	228	237	0.0037
WHITENH18	55	57	0.0066	354	369	0.0105	255	255	0.0000	203	205	0.0024
BLACKNH18	0	0	0.0000	6	7	0.0017	464	461	0.0024	9	10	0.0008
AIANNH18	4	0	0.0548	5	6	0.0018	4	1	0.0040	0	2	0.0019
ASIANNH18	0	2	0.0267	9	2	0.0184	0	4	0.0054	16	15	0.0013
HPINH18	0	0	0.0000	0	0	0.0000	0	0	0.0000	0	2	0.0019
OTHERNH18	0	0	0.0000	0	1	0.0025	0	0	0.0000	0	1	0.0009
MLTMNNH18	0	7	0.0933	2	0	0.0052	1	0	0.0013	0	2	0.0019

Demographic Group (g)	Block Group 040030017032 (AZ)			Block Group 051430110011 (AR)			Block Group 120210112023 (FL)			Block Group 131350505461 (GA)		
	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>	<i>C<sub>SWA</sub></i>	<i>C<sub>TDA</sub></i>	<i>DR<sub>g</sub></i>
<b>TOTAL</b>	2,000	<b>1,966</b>		3,000	<b>2,939</b>		5,001	<b>5,016</b>		10,000	<b>10,014</b>	
<b>TOTAL18</b>	1,562	<b>1,567</b>		2,153	<b>2,112</b>		3,689	<b>3,697</b>		6,704	<b>6,742</b>	
<b>TOTALHISP</b>	349	<b>336<sup>2</sup></b>	<b>0.0036</b>	224	<b>204<sup>2</sup></b>	<b>0.0053</b>	1,770	<b>1,806<sup>2</sup></b>	<b>0.0061</b>	1,291	<b>1,286<sup>3</sup></b>	<b>0.0007</b>
TOTALNH	1,651	1,630	0.0036	2,776	2,735	0.0053	3,231	3,210	0.0061	8,709	8,728	0.0007
WHITENH	1,308	<b>1,324<sup>1</sup></b>	<b>0.0194</b>	2,580	<b>2,566<sup>1</sup></b>	<b>0.0131</b>	2,891	<b>2,883<sup>1</sup></b>	<b>0.0033</b>	3,565	<b>3,571<sup>2</sup></b>	<b>0.0001</b>
BLACKNH	181	<b>164<sup>3</sup></b>	<b>0.0071</b>	87	<b>73<sup>3</sup></b>	<b>0.0042</b>	235	<b>234<sup>3</sup></b>	<b>0.0003</b>	4,475	<b>4,482<sup>1</sup></b>	<b>0.0001</b>
AIANNH	25	28	0.0017	65	57	0.0023	18	26	0.0016	30	46	0.0016
ASIANNH	106	90	0.0072	32	28	0.0011	59	58	0.0002	473	487	0.0013
HPINH	10	11	0.0006	1	3	0.0007	8	0	0.0016	2	4	0.0002
OTHERNH	3	6	0.0016	4	6	0.0007	7	7	0.0000	79	76	0.0003
MLTMNNH	18	7	0.0054	7	2	0.0017	13	2	0.0022	85	62	0.0023
HISP18	236	233	0.0024	110	96	0.0056	1,193	1,219	0.0063	783	800	0.0019
NONHISP18	1,326	1,334	0.0024	2,043	2,016	0.0056	2,496	2,478	0.0063	5,921	5,942	0.0019
WHITENH18	1,089	1,101	0.0054	1,931	1,920	0.0122	2,267	2,257	0.0040	2,630	2,638	0.0010
BLACKNH18	129	129	0.0003	40	32	0.0034	149	147	0.0006	2,868	2,869	0.0023
AIANNH18	20	24	0.0025	41	40	0.0001	14	21	0.0019	22	34	0.0018
ASIANNH18	72	64	0.0053	23	16	0.0031	50	45	0.0014	304	316	0.0015
HPINH18	4	3	0.0006	1	3	0.0010	4	0	0.0011	2	4	0.0003
OTHERNH18	2	6	0.0025	3	5	0.0010	5	6	0.0003	43	37	0.0009
MLTMNNH18	10	7	0.0019	4	0	0.0019	7	2	0.0014	52	44	0.0012



Demographic Group (g)	Block Group 130510107001 (GA)			Block Group 517100038001 (VA)			Block Group 121199112001 (FL)			Block Group 060730187001 (CA)		
	$C_{SWA}$	$C_{TDA}$	$DR_g$	$C_{SWA}$	$C_{TDA}$	$DR_g$	$C_{SWA}$	$C_{TDA}$	$DR_g$	$C_{SWA}$	$C_{TDA}$	$DR_g$
<b>TOTAL</b>	15,089	<b>15,000</b>		19,506	<b>19,517</b>		29,677	<b>29,675</b>		37,452	<b>37,303</b>	
<b>TOTAL18</b>	11,561	<b>11,545</b>		19,486	<b>19,454</b>		29,214	<b>29,198</b>		28,368	<b>28,284</b>	
<b>TOTALHISP</b>	1,066	<b>1,026<sup>3</sup></b>	<b>0.0022</b>	2,599	<b>2,581<sup>3</sup></b>	<b>0.0010</b>	502	<b>501<sup>2</sup></b>	<b>0.0000</b>	8,192	<b>8,091<sup>2</sup></b>	<b>0.0018</b>
<b>TOTALNH</b>	14,023	13,974	0.0022	16,907	16,936	0.0010	29,175	29,174	0.0000	29,260	29,212	0.0018
<b>WHITENH</b>	7,901	<b>7,916<sup>1</sup></b>	<b>0.0041</b>	10,579	<b>10,599<sup>1</sup></b>	<b>0.0007</b>	28,555	<b>28,562<sup>1</sup></b>	<b>0.0003</b>	23,326	<b>23,308<sup>1</sup></b>	<b>0.0020</b>
<b>BLACKNH</b>	5,281	<b>5,273<sup>2</sup></b>	<b>0.0015</b>	4,972	<b>4,975<sup>2</sup></b>	<b>0.0000</b>	276	<b>275<sup>3</sup></b>	<b>0.0000</b>	3,040	<b>3,040<sup>3</sup></b>	<b>0.0003</b>
<b>AIANNH</b>	54	48	0.0004	275	286	0.0006	58	51	0.0002	601	610	0.0003
<b>ASIANNH</b>	643	629	0.0007	776	812	0.0018	246	238	0.0003	1,422	1,420	0.0001
<b>HPINH</b>	17	10	0.0005	80	75	0.0003	7	10	0.0001	340	346	0.0002
<b>OTHERNH</b>	42	32	0.0007	45	39	0.0003	15	10	0.0002	89	74	0.0004
<b>MLTMNNH</b>	85	66	0.0012	180	150	0.0015	18	28	0.0003	442	414	0.0007
<b>HISP18</b>	693	680	0.0010	2,597	2,567	0.0013	460	460	0.0000	5,506	5,449	0.0014
<b>NONHISP18</b>	10,868	10,865	0.0010	16,889	16,887	0.0013	28,754	28,738	0.0000	22,862	22,835	0.0014
<b>WHITENH18</b>	6,404	6,403	0.0007	10,562	10,572	0.0014	28,186	28,193	0.0008	18,751	18,741	0.0016
<b>BLACKNH18</b>	3,849	3,862	0.0016	4,971	4,971	0.0004	247	242	0.0002	2,118	2,107	0.0002
<b>AIANNH18</b>	46	46	0.0000	275	286	0.0006	58	51	0.0002	436	451	0.0006
<b>ASIANNH18</b>	494	486	0.0006	776	799	0.0012	227	213	0.0005	1,032	1,030	0.0000
<b>HPINH18</b>	9	10	0.0001	80	75	0.0003	7	8	0.0000	261	260	0.0000
<b>OTHERNH18</b>	22	19	0.0003	45	37	0.0004	14	10	0.0001	62	54	0.0003
<b>MLTMNNH18</b>	44	39	0.0004	180	147	0.0017	15	21	0.0002	202	192	0.0003

## *Motivating Example for Reliable Characteristics*

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- Stratify the 12 block groups we just saw

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- Stratify the 12 block groups we just saw into 4 strata:

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*Motivating Example for Reliable Characteristics*

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- Stratify the 12 block groups we just saw into 4 strata: Show  $DR_g$  for each stratum where  $g$  is largest demographic group and assume
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Stratum 1: {0.0086, 0.0215, 0.0096}; No block groups reliable;

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- Stratify the 12 block groups we just saw into 4 strata: Show  $DR_g$  for each stratum where  $g$  is largest demographic group and assume
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Stratum 1: {0.0086, 0.0215, 0.0096}; No block groups reliable;

Stratum 2: {0.0015, 0.0194, 0.0131 }; 1 out of 3 (0.3333) reliable;

### *Motivating Example for Reliable Characteristics*

- Stratify the 12 block groups we just saw into 4 strata: Show  $DR_g$  for each stratum where  $g$  is largest demographic group and assume
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Stratum 1: {0.0086, 0.0215, 0.0096}; No block groups reliable;

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Stratum 3: {0.0033, 0.0001, 0.0041}; All 3 (1.0000) reliable;

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- **TDA count is reliable characteristic for the largest demographic group if its  $DR_g \leq 0.0050$ .**

Stratum 1: {0.0086, 0.0215, 0.0096}; No block groups reliable;

Stratum 2: {0.0015, 0.0194, 0.0131 }; 1 out of 3 (0.3333) reliable;

Stratum 3: {0.0033, 0.0001, 0.0041}; All 3 (1.0000) reliable; and

### *Motivating Example for Reliable Characteristics*

- Stratify the 12 block groups we just saw into 4 strata: Show  $DR_g$  for each stratum where  $g$  is largest demographic group and assume
- **TDA count is reliable characteristic for the largest demographic group if its  $DR_g \leq 0.0050$ .**

Stratum 1: {0.0086, 0.0215, 0.0096}; No block groups reliable;

Stratum 2: {0.0015, 0.0194, 0.0131 }; 1 out of 3 (0.3333) reliable;

Stratum 3: {0.0033, 0.0001, 0.0041}; All 3 (1.0000) reliable; and

Stratum 4: {0.0007, 0.0003, 0.0020}. All 3 (1.0000) reliable.

## **I.4. THE QUESTION**



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What is  $C_{SWA}^*$ ?

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$$C_{SWA(1)} \leq C_{SWA(2)} \leq C_{SWA(3)} \leq \cdots \leq C_{SWA}^* \leq \cdots \leq C_{SWA(217,739)} \leq C_{SWA(217,740)},$$

(2)

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(2)

where the  $C_{SWA(i)}$  counts

## I.4. THE QUESTION

What is  $C_{SWA}^*$ ?

$$C_{SWA(1)} \leq C_{SWA(2)} \leq C_{SWA(3)} \leq \cdots \leq C_{SWA}^* \leq \cdots \leq C_{SWA(217,739)} \leq C_{SWA(217,740)}, \quad (2)$$

where the  $C_{SWA(i)}$  counts are the counts for the TOTAL block group, for  $i = 1; 2; \dots; 217,740$ .

**Table:** Proportion of Block Groups in Each Stratum for Three Criteria  
 (Computations use  $C_{TDA}(g)$  counts that result from 2021-04-28 version of the *TDA*.)  
 Population: United States (50 States & DC)

		Reliable Characteristics Criteria		
Stratum for Block Groups Using $C_{SWA}$ for TOTAL	Number of Block Groups	Criterion I  LDG $DR_g \leq 0.01$	Criterion II  LDG $DR_g \leq 0.03$	Criterion III  LDG $DR_g \leq 0.05$
50 $\leq C_{SWA} \leq 99$	128	0.1172	0.2812	0.4062
100 $\leq C_{SWA} \leq 149$	99	0.0909	0.3030	0.4646
150 $\leq C_{SWA} \leq 199$	124	0.1129	0.3710	0.5565
200 $\leq C_{SWA} \leq 249$	154	0.2143	0.4545	0.7143
250 $\leq C_{SWA} \leq 299$	209	0.2105	0.5167	0.7129
300 $\leq C_{SWA} \leq 349$	264	0.2121	0.5871	0.7803
350 $\leq C_{SWA} \leq 399$	407	0.2334	0.6757	0.8428
400 $\leq C_{SWA} \leq 449$	569	0.2900	0.7188	0.8963
450 $\leq C_{SWA} \leq 499$	915	0.3268	0.7628	0.9355
500 $\leq C_{SWA} \leq 549$	1,699	0.3431	0.7905	0.9370
<b>550 <math>\leq C_{SWA} \leq 599</math></b>	<b>3,238</b>	0.3811	0.8295	<b>0.9580</b>
600 $\leq C_{SWA} \leq 649$	5,131	0.3962	0.8564	0.9723
650 $\leq C_{SWA} \leq 699$	6,683	0.4200	0.8692	0.9753
700 $\leq C_{SWA} \leq 749$	7,356	0.4468	0.8802	0.9826
750 $\leq C_{SWA} \leq 799$	8,170	0.4477	0.8973	0.9838
800 $\leq C_{SWA} \leq 849$	8,213	0.4785	0.9190	0.9907
850 $\leq C_{SWA} \leq 899$	8,441	0.4971	0.9231	0.9892
900 $\leq C_{SWA} \leq 949$	8,657	0.5021	0.9287	0.9928
950 $\leq C_{SWA} \leq 999$	8,723	0.5202	0.9411	0.9948
1,000 $\leq C_{SWA} \leq 1,049$	8,398	0.5460	0.9447	0.9936
<b>1,050 <math>\leq C_{SWA} \leq 1,099</math></b>	<b>8,345</b>	0.5464	<b>0.9575</b>	0.9959
1,100 $\leq C_{SWA} \leq 1,149$	7,950	0.5552	0.9572	0.9969
1,150 $\leq C_{SWA} \leq 1,199$	7,860	0.5748	0.9626	0.9971

Table (Continued):

		Reliable Characteristics Criteria		
Stratum for Block Groups Using $C_{SWA}$ for TOTAL	Number of Block Groups	Criterion I	Criterion II	Criterion III
		$LDG\ DR_g \leq 0.01$	$LDG\ DR_g \leq 0.03$	$LDG\ DR_g \leq 0.05$
1,200 $\leq C_{SWA} < 1,249$	7,451	0.5770	0.9691	0.9977
1,250 $\leq C_{SWA} < 1,299$	7,124	0.6049	0.9698	0.9983
1,300 $\leq C_{SWA} < 1,349$	6,714	0.6151	0.9724	0.9993
1,350 $\leq C_{SWA} < 1,399$	6,507	0.6178	0.9743	0.9989
1,400 $\leq C_{SWA} < 1,449$	5,911	0.6287	0.9785	0.9980
1,450 $\leq C_{SWA} < 1,499$	5,617	0.6386	0.9810	0.9993
1,500 $\leq C_{SWA} < 1,549$	5,390	0.6471	0.9848	0.9996
1,550 $\leq C_{SWA} < 1,599$	4,856	0.6623	0.9841	0.9992
1,600 $\leq C_{SWA} < 1,649$	4,508	0.6528	0.9878	0.9998
1,650 $\leq C_{SWA} < 1,699$	4,325	0.6805	0.9864	0.9998
1,700 $\leq C_{SWA} < 1,749$	4,093	0.6895	0.9924	0.9993
1,750 $\leq C_{SWA} < 1,799$	3,689	0.6837	0.9883	0.9997
1,800 $\leq C_{SWA} < 1,849$	3,469	0.7094	0.9928	0.9997
1,850 $\leq C_{SWA} < 1,899$	3,252	0.7011	0.9889	1.0000
1,900 $\leq C_{SWA} < 1,949$	3,008	0.7048	0.9924	0.9997
1,950 $\leq C_{SWA} < 1,999$	2,832	0.7334	0.9926	0.9996
2,000 $\leq C_{SWA} < 2,049$	2,573	0.7178	0.9953	1.0000
2,050 $\leq C_{SWA} < 2,099$	2,356	0.7394	0.9949	1.0000
2,100 $\leq C_{SWA} < 2,149$	2,307	0.7391	0.9944	0.9991
2,150 $\leq C_{SWA} < 2,199$	2,033	0.7634	0.9970	1.0000
2,200 $\leq C_{SWA} < 2,249$	1,999	0.7564	0.9970	0.9995
2,250 $\leq C_{SWA} < 2,299$	1,892	0.7627	0.9963	1.0000
2,300 $\leq C_{SWA} < 2,349$	1,666	0.7533	0.9976	0.9994
2,350 $\leq C_{SWA} < 2,399$	1,622	0.7608	0.9957	1.0000
2,400 $\leq C_{SWA} < 2,449$	1,421	0.7643	0.9986	1.0000
2,450 $\leq C_{SWA} < 2,499$	1,350	0.7733	0.9970	0.9993
Total	199,698			

Using public released data

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*“for any block group with a TOTAL count near 600 people, the difference between the TDA ratio of the largest demographic group (LDG) and the corresponding SWA ratio for the LDG is less than or equal to 5 percentage points at least 95% of the time”.*



Applied same version of *TDA*

Applied same version of *TDA* 25 independent times (runs) to CEF.

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Stratum for each run, where 0.9500 was exceeded is in Table.

**Table:** For Each Run, the Stratum and Stratum Proportion When 0.9500 First Exceeded  
Population: United States (50 States & DC)

<i>TDA</i> Run	Criterion III LDG $DR_g \leq 0.05$	
	Stratum for Block Groups	Proportion When 0.9500 First Exceeded
1	550 $\leq C_{SWA} \leq$ 599	0.9589
2	550 $\leq C_{SWA} \leq$ 599	0.9605
3	550 $\leq C_{SWA} \leq$ 599	0.9623
4	550 $\leq C_{SWA} \leq$ 599	0.9642
5	550 $\leq C_{SWA} \leq$ 599	0.9608
6	550 $\leq C_{SWA} \leq$ 599	0.9580
7	550 $\leq C_{SWA} \leq$ 599	0.9592
8	550 $\leq C_{SWA} \leq$ 599	0.9614
9	550 $\leq C_{SWA} \leq$ 599	0.9595
10	550 $\leq C_{SWA} \leq$ 599	0.9636
11	550 $\leq C_{SWA} \leq$ 599	0.9592
12	550 $\leq C_{SWA} \leq$ 599	0.9589
13	550 $\leq C_{SWA} \leq$ 599	0.9592
14	550 $\leq C_{SWA} \leq$ 599	0.9617
15	550 $\leq C_{SWA} \leq$ 599	0.9589
16	550 $\leq C_{SWA} \leq$ 599	0.9617
17	550 $\leq C_{SWA} \leq$ 599	0.9617
18	550 $\leq C_{SWA} \leq$ 599	0.9614
19	550 $\leq C_{SWA} \leq$ 599	0.9592
20	550 $\leq C_{SWA} \leq$ 599	0.9558
21	550 $\leq C_{SWA} \leq$ 599	0.9592
22	550 $\leq C_{SWA} \leq$ 599	0.9589
23	550 $\leq C_{SWA} \leq$ 599	0.9580
24	550 $\leq C_{SWA} \leq$ 599	0.9611
25	550 $\leq C_{SWA} \leq$ 599	0.9568

*"Place and MCD" (21,00+ entities) as Alternative to "Block Group"*

**Table:** For Each Run, the Stratum and Stratum Proportion When 0.9500 First Exceeded  
Population: United States (50 States & DC)

TDA Run	Stratum for Places & MCDs	Criterion III
		LDG $DR_g \leq 0.05$ Proportion When 0.9500 First Exceeded
1	$300 \leq C_{SWA} \leq 349$	0.9621
2	$250 \leq C_{SWA} \leq 299$	0.9580
3	$300 \leq C_{SWA} \leq 349$	0.9598
4	$250 \leq C_{SWA} \leq 299$	0.9580
5	$300 \leq C_{SWA} \leq 349$	0.9665
6	$300 \leq C_{SWA} \leq 349$	0.9688
7	$300 \leq C_{SWA} \leq 349$	0.9688
8	$300 \leq C_{SWA} \leq 349$	0.9621
9	$300 \leq C_{SWA} \leq 349$	0.9754
10	$300 \leq C_{SWA} \leq 349$	0.9576
11	$300 \leq C_{SWA} \leq 349$	0.9598
12	$300 \leq C_{SWA} \leq 349$	0.9777
13	$300 \leq C_{SWA} \leq 349$	0.9598
14	$300 \leq C_{SWA} \leq 349$	0.9688
15	$300 \leq C_{SWA} \leq 349$	0.9688
16	$300 \leq C_{SWA} \leq 349$	0.9643
17	$300 \leq C_{SWA} \leq 349$	0.9732
18	$300 \leq C_{SWA} \leq 349$	0.9665
19	$300 \leq C_{SWA} \leq 349$	0.9710
20	$300 \leq C_{SWA} \leq 349$	0.9621
21	$300 \leq C_{SWA} \leq 349$	0.9688
22	$350 \leq C_{SWA} \leq 399$	0.9520
23	$300 \leq C_{SWA} \leq 349$	0.9643
24	$300 \leq C_{SWA} \leq 349$	0.9598
25	$300 \leq C_{SWA} \leq 349$	0.9732

*"Congressional & State Legislative District" as Alternative to "Block Group"*

-  
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– Congressional district(s) (CD)

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	CD	SLDU	SLDL
Number of Districts in U.S.	436	1,946	4,785
Min Population	526,283	13,629	3,173
Median Population	705,831	121,212	41,713
Mean Population	708,132	158,656	64,016
Max Population	989,415	940,612	470,325

**Table:** For Each Run, the Stratum and Stratum Proportion When 0.9500 First Exceeded  
Population: United States (50 States & DC)

TDA Run	Stratum for Congressional & State Legislative Districts	Criterion III $LDG\ DR_g \leq 0.05$
		Proportion When 0.9500 First Exceeded
1	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
2	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
3	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
4	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
5	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
6	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
7	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
8	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
9	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
10	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
11	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
12	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
13	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
14	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
15	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
16	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
17	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
18	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
19	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
20	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
21	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
22	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
23	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
24	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000
25	3, 150 $\leq C_{SWA} \leq$ 3, 199	1.0000

## **I.5. CONCLUDING REMARKS FOR PART I**

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## Part II

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- In this study,  $\epsilon = 10.3$  and advances have been made resulting in the 2021-04-28 version of *TDA*.

## 2010 Census Data for Rhode Island

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- Panola County, Mississippi (MS) (2,180 blocks);
- Tate County (School District), MS (784 blocks); and
- Tylertown (Walthall County), MS (136 blocks).

		2010 Census, SF1 (PL 94-171)(2013) Counts & Percentages POST-2010 Plan		Counts & Percentages, 113 <sup>th</sup> Congress 3 Out of 25 Runs of the TDA					
Demographics		113 <sup>th</sup> Congress		TDA-Run A		TDA-Run B		TDA-Run C	
DIST-ID	Rhode Island	CD-01	CD-02	CD-01	CD-02	CD-01	CD-02	CD-01	CD-02
TOTAL	1,052,567	526,283	526,284	526,449	526,118	526,173	526,394	525,872	526,695
DEV		-0.5	0.5	165.5	-165.5	-110.5	110.5	-411.5	411.5
DEVP		0.00	0.00	0.03	-0.03	-0.02	0.02	-0.08	0.08
TOTAL18	828,611	412,778	415,833	412,736	415,826	412,776	415,807	412,512	416,054
TOTALHISP	130,655	76,100	54,555	76,248	54,402	76,230	54,402	76,153	54,539
TOTALHISPP	12.41	14.46	10.37	14.48	10.34	14.49	10.33	14.48	10.35
TOTALNH	921,912	450,183	471,729	450,201	471,716	449,943	471,992	449,719	472,156
TOTALNHP	87.59	85.54	89.63	85.52	89.66	85.51	89.67	85.52	89.65
WHITENH	803,685	377,109	426,576	377,022	426,658	376,955	426,735	377,012	426,677
WHITENHP	76.35	71.66	81.05	71.62	81.10	71.64	81.07	71.69	81.01
BLACKNH	57,927	37,627	20,300	37,704	20,219	37,705	20,247	37,517	20,406
BLACKNHP	5.50	7.15	3.86	7.16	3.84	7.17	3.85	7.13	3.87
AIANNH	6,839	3,142	3,697	3,201	3,672	3,126	3,717	3,141	3,735
AIANNHP	0.65	0.60	0.70	0.61	0.70	0.59	0.71	0.60	0.71
ASIANNH	34,194	17,705	16,489	17,692	16,505	17,684	16,496	17,723	16,478
ASIANNHP	3.25	3.36	3.13	3.36	3.14	3.36	3.13	3.37	3.13
HPINH	655	383	272	427	242	400	263	355	293
HPINHP	0.06	0.07	0.05	0.08	0.05	0.08	0.05	0.07	0.06
OTHERNH	10,296	8,492	1,804	8,443	1,845	8,454	1,845	8,457	1,829
OTHERNHP	0.98	1.61	0.34	1.60	0.35	1.61	0.35	1.61	0.35
MLTMNNH	8,316	5,725	2,591	5,712	2,575	5,619	2,689	5,514	2,738
MLTMNHP	0.79	1.09	0.49	1.09	0.49	1.07	0.51	1.05	0.52
HISP18	84,715	49,303	35,412	49,333	35,349	49,428	35,253	49,331	35,368
HISP18P	10.22	11.94	8.52	11.95	8.50	11.97	8.48	11.96	8.50
NONHISP18	743,896	363,475	380,421	363,403	380,477	363,348	380,554	363,181	380,686
NONHISP18P	89.78	88.06	91.48	88.05	91.50	88.03	91.52	88.04	91.50
WHITENH18	660,823	312,240	348,583	312,178	348,640	312,163	348,684	312,232	348,589
WHITENH18P	79.75	75.64	83.83	75.64	83.84	75.63	83.86	75.69	83.78
BLACKNH18	39,485	25,402	14,083	25,414	14,060	25,425	14,068	25,326	14,153
BLACKNH18P	4.77	6.15	3.39	6.16	3.38	6.16	3.38	6.14	3.40
AIANNH18	4,963	2,332	2,631	2,326	2,645	2,291	2,666	2,317	2,670
AIANNH18P	0.60	0.56	0.63	0.56	0.64	0.56	0.64	0.56	0.64
ASIANNH18	25,333	13,276	12,057	13,229	12,106	13,282	12,035	13,326	12,008
ASIANNH18P	3.06	3.22	2.90	3.21	2.91	3.22	2.89	3.23	2.89
HPINH18	500	307	193	334	175	313	195	275	221
HPINH18P	0.06	0.07	0.05	0.08	0.04	0.08	0.05	0.07	0.05
OTHERNH18	7,290	6,061	1,229	6,059	1,224	6,067	1,214	6,008	1,271
OTHERNH18P	0.88	1.47	0.30	1.47	0.29	1.47	0.29	1.46	0.31
MLTMNH18	5,502	3,857	1,645	3,863	1,627	3,807	1,692	3,697	1,774
MLTMNH18P	0.66	0.93	0.40	0.94	0.39	0.92	0.41	0.90	0.43

Source: Data from 3 Runs of the TDA, U. S. Bureau of the Census, Washington, D.C.



	2010 Census, SF1 (PL 94-171) (2013) Counts & Percentages POST-2010 Plan				Counts & Percentages, 2013 Run A of the TDA			
Demographics								
DIST.ID	SLDU-01	SLDU-02	SLDU-03	SLDU-04	SLDU-01	SLDU-02	SLDU-03	SLDU-04
TOTAL	28,161	28,079	28,398	28,201	27,836	27,823	28,716	28,201
DEV	461.9	379.9	698.9	501.9	136.9	123.9	1,016.9	501.9
DEVP	1.64	1.35	2.46	1.78	0.49	0.45	3.54	1.78
TOTAL18	20,914	19,846	25,361	23,599	20,746	19,706	25,506	23,592
TOTALHISP	10,282	16,288	1,409	3,217	10,142	16,134	1,525	3,192
TOTALHISPP	36.51	58.01	4.96	11.41	36.43	57.99	5.31	11.32
TOTALNH	17,879	11,791	26,989	24,984	17,694	11,689	27,191	25,009
TOTALNHP	63.49	41.99	95.04	88.59	63.57	42.01	94.69	88.68
WHITENH	10,222	3,553	22,028	21,210	10,216	3,531	22,030	21,305
WHITENHP	36.30	12.65	77.57	75.21	36.70	12.69	76.72	75.55
BLACKNH	4,862	4,332	1,124	2,348	4,814	4,309	1,164	2,318
BLACKNHP	17.27	15.43	3.96	8.33	17.29	15.49	4.05	8.22
AIANNH	283	216	135	172	254	186	170	170
AIANNHP	1.00	0.77	0.48	0.61	0.91	0.67	0.59	0.60
ASIANNH	1,526	3,032	3,262	826	1,587	3,051	5,253	781
ASIANNHP	5.42	10.80	11.49	2.93	5.70	10.97	11.33	2.77
HPINH	25	11	16	14	18	6	27	9
HPINHP	0.09	0.04	0.06	0.05	0.06	0.02	0.09	0.03
OTHERNH	457	189	224	241	438	196	253	220
OTHERNHP	1.62	0.67	0.79	0.85	1.57	0.70	0.88	0.78
MLTMNNH	504	458	200	173	367	410	294	206
MLTMNNHP	1.79	1.63	0.70	0.61	1.32	1.47	1.02	0.73
HISP18	6,458	11,014	1,241	2,097	6,369	10,919	1,262	2,088
HISP18P	30.88	55.50	4.89	8.89	30.70	55.41	4.95	8.85
NONHISP18	14,456	8,832	24,120	21,502	14,377	8,787	24,244	21,504
NONHISP18P	69.12	44.50	95.11	91.11	69.30	44.59	95.05	91.15
WHITENH18	9,131	3,062	19,682	18,839	9,134	3,049	19,703	18,919
WHITENH18P	43.66	15.43	77.61	79.83	44.03	15.47	77.25	80.19
BLACKNH18	3,309	3,027	973	1,599	3,279	3,006	990	1,585
BLACKNH18P	15.82	15.25	3.84	6.78	15.81	15.25	3.88	6.72
AIANNH18	197	154	110	136	186	140	123	123
AIANNH18P	0.94	0.78	0.43	0.58	0.90	0.71	0.48	0.52
ASIANNH18	1,170	2,135	2,989	611	1,197	2,160	2,980	577
ASIANNH18P	5.59	10.76	11.79	2.59	5.77	10.96	11.68	2.45
HPINH18	20	11	14	13	11	5	21	5
HPINH18P	0.10	0.06	0.06	0.06	0.05	0.03	0.08	0.02
OTHERNH18	326	125	186	178	325	125	201	170
OTHERNH18P	1.56	0.63	0.73	0.75	1.57	0.63	0.79	0.72
MLTMNH18	303	318	166	126	245	302	226	125
MLTMNH18P	1.45	1.60	0.65	0.53	1.18	1.53	0.89	0.53

	2010 Census, SF1 (PL 94-171) (2013) Counts & Percentages POST-2010 Plan				Counts & Percentages, 2013 Run A of the TDA			
Demographics								
DIST-ID	SLDL-01	SLDL-02	SLDL-03	SLDL-04	SLDL-01	SLDL-02	SLDL-03	SLDL-04
TOTAL	13,881	13,821	13,949	13,713	14,072	13,707	13,714	13,660
DEV	-153.2	-213.2	-85.2	-321.2	37.8	-327.2	-320.2	-374.2
DEVP	-1.10	-1.54	-0.61	-2.34	0.27	-2.39	-2.34	-2.74
TOTAL18	12,835	12,800	9,607	11,205	12,899	12,699	9,523	11,166
TOTALHISP	1,002	1,768	5,905	1,049	1,086	1,692	5,826	1,033
TOTALHISP	7.22	12.79	42.33	7.65	7.72	12.34	42.48	7.56
TOTALNH	12,879	12,053	8,044	12,664	12,986	12,015	7,888	12,627
TOTALNHP	92.78	87.21	57.67	92.35	92.28	87.66	57.52	92.44
WHITENH	9,922	8,714	3,465	9,539	9,899	8,697	3,464	9,547
WHITENHP	71.48	63.05	24.84	69.56	70.35	63.45	25.26	69.89
BLACKNH	581	1,125	3,015	1,495	605	1,128	2,969	1,509
BLACKNHP	4.19	8.14	21.61	10.90	4.30	8.23	21.65	11.05
AIANNH	46	104	189	126	66	123	152	99
AIANNHP	0.33	0.75	1.35	0.92	0.47	0.90	1.11	0.72
ASIANNH	2,175	1,776	794	792	2,167	1,753	823	803
ASIANNHP	15.67	12.85	5.69	5.78	15.40	12.79	6.00	5.88
HPINH	12	16	12	1	25	11	6	9
HPINHP	0.09	0.12	0.09	0.01	0.18	0.08	0.04	0.07
OTHERNH	57	148	257	396	85	130	240	392
OTHERNHP	0.41	1.07	1.84	2.89	0.60	0.95	1.75	2.87
MLTMNNH	86	170	312	315	139	173	234	268
MLTMNHP	0.62	1.23	2.24	2.30	0.99	1.26	1.71	1.96
HISP18	951	1,475	3,518	693	977	1,398	3,498	666
HISP18P	7.41	11.52	36.62	6.18	7.57	11.01	36.73	5.96
NONHISP18	11,884	11,325	6,089	10,512	11,922	11,301	6,025	10,500
NONHISP18P	92.59	88.48	63.38	93.82	92.43	88.99	63.27	94.04
WHITENH18	9,081	8,339	3,040	8,119	9,068	8,338	3,038	8,137
WHITENH18P	70.75	65.15	31.64	72.46	70.30	65.66	31.90	72.87
BLACKNH18	560	972	1,971	1,144	557	976	1,945	1,163
BLACKNH18P	4.36	7.59	20.52	10.21	4.32	7.69	20.42	10.42
AIANNH18	45	82	129	101	50	99	110	85
AIANNH18P	0.35	0.64	1.34	0.90	0.39	0.78	1.16	0.76
ASIANNH18	2,052	1,655	575	635	2,037	1,633	589	644
ASIANNH18P	15.99	12.93	5.99	5.67	15.79	12.86	6.19	5.77
HPINH18	10	14	11	1	22	8	2	3
HPINH18P	0.08	0.11	0.11	0.01	0.17	0.06	0.02	0.03
OTHERNH18	51	126	190	280	69	110	181	281
OTHERNH18P	0.40	0.98	1.98	2.50	0.53	0.87	1.90	2.52
MLTMNH18	85	137	173	232	119	137	160	187
MLTMNH18P	0.66	1.07	1.80	2.07	0.92	1.08	1.68	1.67

$$2010 \text{ Census IDEAL POPULATION} = \frac{34,707}{5} = 6,941.4$$

$$TDA \text{ IDEAL POPULATION} = \frac{34,702}{5} = 6,940.4$$

Demographics	2010 Census, SF1 (PL 94-171) Counts & Percentages POST-2010 Plan						Counts & Percentages Run A of the TDA					
	Panola	01	02	03	04	05	Panola	01	02	03	04	05
DIST-ID												
TOTAL	34,707	6,974	6,549	7,074	7,105	7,005	34,702	7,044	6,571	7,033	7,066	6,988
DEV		32.6	-392.4	132.6	163.6	63.6		103.6	-369.4	92.6	125.6	47.6
DEVP		0.47	-5.99	1.87	2.30	0.91		1.47	-5.62	1.32	1.78	0.68
TOTAL18	25,363	5,214	4,732	5,171	5,345	4,901	25,384	5,267	4,730	5,171	5,313	4,903
TOTALHISP	494	66	75	85	120	148	521	98	80	80	104	159
TOTALHISPP	1.42	0.95	1.15	1.20	1.69	2.11	1.50	1.39	1.22	1.14	1.47	2.28
TOTALNH	34,213	6,908	6,474	6,989	6,985	6,857	34,181	6,946	6,491	6,953	6,962	6,829
TOTALNHP	98.58	99.05	98.85	98.80	98.31	97.89	98.50	98.61	98.78	98.86	98.53	97.72
WHITENH	16,981	2,419	2,096	4,030	5,250	3,186	16,989	2,455	2,084	4,020	5,249	3,181
WHITENHP	48.93	34.69	32.00	56.97	73.89	45.48	48.96	34.85	31.72	57.16	74.29	45.52
BLACKNH	16,899	4,427	4,332	2,925	1,658	3,557	16,870	4,421	4,345	2,893	1,660	3,551
BLACKNHP	48.69	63.48	66.15	41.35	23.34	50.78	48.61	62.76	66.12	41.13	23.49	50.82
AIANNH	148	26	20	15	38	49	143	28	24	21	34	36
AIANNHP	0.43	0.37	0.31	0.21	0.53	0.70	0.41	0.40	0.37	0.30	0.48	0.52
ASIANNH	89	8	7	5	17	52	100	14	20	8	9	49
ASIANNHP	0.26	0.11	0.11	0.07	0.24	0.74	0.29	0.20	0.30	0.11	0.13	0.70
HPINH	4	0	0	0	2	2	0	0	0	0	0	0
HPINHP	0.01	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00
OTHERNH	19	7	5	1	3	3	4	2	2	0	0	0
OTHERNHP	0.05	0.10	0.08	0.01	0.04	0.04	0.01	0.03	0.03	0.00	0.00	0.00
MLTMNH	73	21	14	13	17	8	75	26	16	11	10	12
MLTMNHP	0.21	0.30	0.21	0.18	0.24	0.11	0.22	0.37	0.24	0.16	0.14	0.17
HISP18	298	44	44	52	63	95	320	71	57	43	61	88
HISP18P	1.17	0.84	0.93	1.01	1.18	1.94	1.26	1.35	1.21	0.83	1.15	1.79
NONHISP18	25,065	5,170	4,688	5,119	5,282	4,806	25,064	5,196	4,673	5,128	5,252	4,815
NONHISP18P	98.83	99.16	99.07	98.99	98.82	98.06	98.74	98.65	98.79	99.17	98.85	98.21
WHITENH18	13,455	2,025	1,732	3,072	4,115	2,511	13,464	2,044	1,697	3,097	4,112	2,514
WHITENH18P	53.05	38.84	36.60	59.41	76.99	51.23	53.04	38.81	35.88	59.89	77.40	51.27
BLACKNH18	11,394	3,099	2,928	2,024	1,118	2,225	11,386	3,110	2,937	2,004	1,107	2,228
BLACKNH18P	44.92	59.44	61.88	39.14	20.92	45.40	44.86	59.05	62.09	38.75	20.84	45.44
AIANNH18	115	21	16	11	29	38	116	22	18	17	23	36
AIANNH18P	0.45	0.40	0.34	0.21	0.54	0.78	0.46	0.42	0.38	0.33	0.43	0.73
ASIANNH18	54	8	5	2	12	27	60	7	13	4	4	32
ASIANNH18P	0.21	0.15	0.11	0.04	0.22	0.55	0.24	0.13	0.27	0.08	0.08	0.65
HPINH18	2	0	0	0	1	1	0	0	0	0	0	0
HPINH18P	0.01	0.00	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
OTHERNH18	5	1	0	1	2	1	0	0	0	0	0	0
OTHERNH18P	0.02	0.02	0.00	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00
MLTMNH18	40	16	7	9	5	3	38	13	8	6	6	5
MLTMNH18P	0.16	0.31	0.15	0.17	0.09	0.06	0.15	0.25	0.17	0.12	0.11	0.10

$$2010 \text{ Census IDEAL POPULATION} = \frac{18,823}{5} = 3,764.6$$

$$TDA \text{ IDEAL POPULATION} = \frac{18,831}{5} = 3,766.2$$

Demographics	2010 Census, SF1 (PL 94-171) Counts & Percentages POST-2010 Plan						Counts & Percentages Run A of the TDA					
	Tate	01	02	03	04	05	Tate	01	02	03	04	05
DIST-ID												
TOTAL	18,823	3,914	3,893	3,665	3,697	3,654	18,831	3,919	3,886	3,654	3,750	3,622
DEV		149.4	128.4	-99.6	-67.6	-110.6		152.8	119.8	-112.2	-16.2	-144.2
DEVP		3.82	3.30	-2.72	-1.83	-3.03		3.90	3.08	-3.07	-0.43	-3.98
TOTAL18	13,893	2,780	2,826	2,799	2,755	2,733	13,909	2,788	2,833	2,796	2,773	2,719
TOTALHISP	399	87	63	110	32	107	388	87	70	102	57	72
TOTALHISPP	2.12	2.22	1.62	3.00	0.87	2.93	2.06	2.22	1.80	2.79	1.52	1.99
TOTALNH	18,424	3,827	3,830	3,555	3,665	3,547	18,443	3,832	3,816	3,552	3,693	3,550
TOTALNHP	97.88	97.78	98.38	97.00	99.13	97.07	97.94	97.78	98.20	97.21	98.48	98.01
WHITENH	12,841	3,378	1,628	2,860	2,293	2,682	12,827	3,401	1,610	2,850	2,267	2,699
WHITENHP	68.22	86.31	41.82	78.04	62.02	73.40	68.12	86.78	41.43	78.00	60.45	74.52
BLACKNH	5,389	400	2,139	666	1,349	835	5,420	388	2,152	676	1,380	824
BLACKNHP	28.63	10.22	54.94	18.17	36.49	22.85	28.78	9.90	55.38	18.50	36.80	22.75
AIANNH	103	32	26	19	11	15	112	26	27	16	26	17
AIANNHP	0.55	0.82	0.67	0.52	0.30	0.41	0.59	0.66	0.69	0.44	0.69	0.47
ASLANNH	47	14	16	6	7	4	51	11	18	5	15	2
ASLANNHP	0.25	0.36	0.41	0.16	0.19	0.11	0.27	0.28	0.46	0.14	0.40	0.06
HPINH	3	2	0	0	0	1	0	0	0	0	0	0
HPINHP	0.02	0.05	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
OTHERNH	9	1	5	1	1	1	18	3	5	2	3	5
OTHERNHP	0.05	0.03	0.13	0.03	0.03	0.03	0.10	0.08	0.13	0.05	0.08	0.14
MLTMNH	32	0	16	3	4	9	15	3	4	3	2	3
MLTMNHP	0.17	0.00	0.41	0.08	0.11	0.25	0.08	0.08	0.10	0.08	0.05	0.08
HISP18	215	47	34	63	16	55	226	53	46	62	29	36
HISP18P	1.55	1.69	1.20	2.25	0.58	2.01	1.62	1.90	1.62	2.22	1.05	1.32
NONHISP18	13,678	2,733	2,792	2,736	2,739	2,678	13,683	2,735	2,787	2,734	2,744	2,683
NONHISP18P	98.45	98.31	98.80	97.75	99.42	97.99	98.38	98.10	98.38	97.78	98.95	98.68
WHITENH18	9,747	2,438	1,278	2,219	1,755	2,057	9,738	2,456	1,265	2,207	1,734	2,076
WHITENH18P	70.16	87.70	45.22	79.28	63.70	75.27	70.01	88.09	44.65	78.93	62.53	76.35
BLACKNH18	3,790	261	1,471	498	965	595	3,800	248	1,485	504	977	586
BLACKNH18P	27.28	9.39	52.05	17.79	35.03	21.77	27.32	8.90	52.42	18.03	35.23	21.55
AIANNH18	79	23	21	13	9	13	82	22	18	13	16	13
AIANNH18P	0.57	0.83	0.74	0.46	0.33	0.48	0.59	0.79	0.64	0.46	0.58	0.48
ASLANNH18	35	8	13	4	6	4	36	4	12	5	13	2
ASLANNH18P	0.25	0.29	0.46	0.14	0.22	0.15	0.26	0.14	0.42	0.18	0.47	0.07
HPINH18	3	2	0	0	0	1	0	0	0	0	0	0
HPINH18P	0.02	0.07	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
OTHERNH18	4	1	1	1	0	1	14	3	3	2	3	3
OTHERNH18P	0.03	0.04	0.04	0.04	0.00	0.04	0.10	0.11	0.11	0.07	0.11	0.11
MLTMNH18	20	0	8	1	4	7	13	2	4	3	1	3
MLTMNH18P	0.14	0.00	0.28	0.04	0.15	0.26	0.09	0.07	0.14	0.11	0.04	0.11

$$2010 \text{ Census IDEAL POPULATION} = \frac{1,609}{4} = 402.25$$

$$TDA \text{ IDEAL POPULATION} = \frac{1,617}{4} = 404.25$$

	2010 Census, SF1 (PL 94-171)					Counts & Percentages Run A of the TDA				
	Counts & Percentages POST-2010 Plan									
Demographics	Tylertown	01	02	03	04	Tylertown	01	02	03	04
DIST-ID										
TOTAL	1,609	405	399	391	414	1,617	398	411	401	407
DEV		2.8	-3.2	-11.2	11.8		-6.2	6.8	-3.2	2.8
DEVP		0.68	-0.81	-2.88	2.84		-1.57	1.64	-0.81	0.68
TOTAL18	1,233	327	320	313	273	1,244	323	335	312	274
TOTALHISP	42	12	7	9	14	45	12	11	18	4
TOTALHISP18	2.61	2.96	1.75	2.30	3.38	2.78	3.02	2.68	4.49	0.98
TOTALNH	1,567	393	392	382	400	1,572	386	400	383	403
TOTALNH18	97.39	97.04	98.25	97.70	96.62	97.22	96.98	97.32	95.51	99.02
WHITENH	860	371	215	246	28	850	368	207	244	31
WHITENH18	53.45	91.60	53.88	62.92	6.76	56.57	92.46	50.36	60.85	7.62
BLACKNH	679	17	174	119	369	676	14	171	122	369
BLACKNH18	42.20	4.20	43.61	30.43	89.13	41.81	3.52	41.61	30.42	90.66
AIANNH	14	5	3	3	3	19	0	12	5	2
AIANNH18	0.87	1.23	0.75	0.77	0.72	1.18	0.00	2.92	1.25	0.49
ASIANNH	12	0	0	12	0	14	2	6	6	0
ASIANNH18	0.75	0.00	0.00	3.07	0.00	0.87	0.50	1.46	1.50	0.00
HPINH	0	0	0	0	0	0	0	0	0	0
HPINH18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHERNH	0	0	0	0	0	5	2	1	1	1
OTHERNH18	0.00	0.00	0.00	0.00	0.00	0.31	0.50	0.24	0.25	0.25
MLTMNH	2	0	0	2	0	8	0	3	5	0
MLTMNH18	0.12	0.00	0.00	0.51	0.00	0.49	0.00	0.73	1.25	0.00
HISP18	27	7	4	8	8	26	9	5	8	4
HISP18P	2.19	2.14	1.25	2.56	2.93	2.09	2.79	1.49	2.56	1.46
NONHISP18	1,206	320	316	305	265	1,218	314	330	304	270
NONHISP18P	97.81	97.86	98.75	97.44	97.07	97.91	97.21	98.51	97.44	98.54
WHITENH18	723	302	188	210	23	717	301	183	208	25
WHITENH18P	58.64	92.35	58.75	67.09	8.42	57.64	93.19	54.63	66.67	9.12
BLACKNH18	462	14	127	81	240	464	9	132	81	242
BLACKNH18P	37.47	4.28	39.69	25.88	87.91	37.30	2.79	39.40	25.96	88.32
AIANNH18	10	4	1	3	2	11	0	6	3	2
AIANNH18P	0.81	1.22	0.31	0.96	0.73	0.88	0.00	1.79	0.96	0.73
ASIANNH18	10	0	0	10	0	14	2	6	6	0
ASIANNH18P	0.81	0.00	0.00	3.19	0.00	1.13	0.62	1.79	1.92	0.00
HPINH18	0	0	0	0	0	0	0	0	0	0
HPINH18P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHERNH18	0	0	0	0	0	5	2	1	1	1
OTHERNH18P	0.00	0.00	0.00	0.00	0.00	0.40	0.62	0.30	0.32	0.36
MLTMNH18	1	0	0	1	0	7	0	2	5	0
MLTMNH18P	0.08	0.00	0.00	0.32	0.00	0.56	0.00	0.60	1.60	0.00

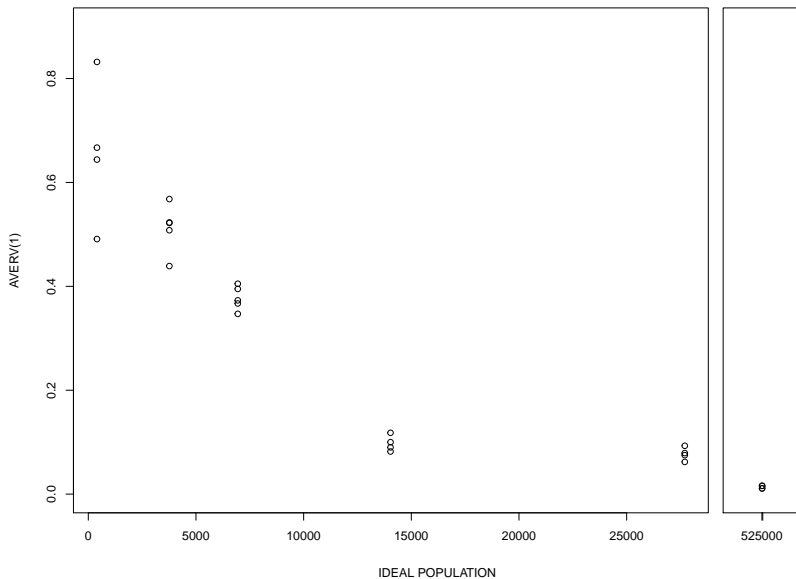
Run $i$	$C_{Ti}(g)$	$(C_{Ti}(g) - C_T(g))^2$	$(C_{Ti}(g) - C_S(g))^2$
1.	17,628	$(17,628 - 17,684.80)^2 = 3,226.24$	$(17,628 - 17,705)^2 = 5,929$
2.	17,685	$(17,685 - 17,684.80)^2 = 0.04$	$(17,685 - 17,705)^2 = 400$
3.	17,671	$(17,671 - 17,684.80)^2 = 190.44$	$(17,671 - 17,705)^2 = 1,156$
4.	17,669	$(17,669 - 17,684.80)^2 = 249.64$	$(17,669 - 17,705)^2 = 1,296$
5.	17,713	$(17,713 - 17,684.80)^2 = 795.24$	$(17,713 - 17,705)^2 = 64$
6.	17,692	$(17,692 - 17,684.80)^2 = 51.84$	$(17,692 - 17,705)^2 = 169$
7.	17,692	$(17,692 - 17,684.80)^2 = 51.84$	$(17,692 - 17,705)^2 = 169$
8.	17,640	$(17,640 - 17,684.80)^2 = 2,007.04$	$(17,640 - 17,705)^2 = 4,225$
9.	17,715	$(17,715 - 17,684.80)^2 = 912.04$	$(17,715 - 17,705)^2 = 100$
10.	17,625	$(17,625 - 17,684.80)^2 = 3,576.04$	$(17,625 - 17,705)^2 = 6,400$
11.	17,718	$(17,718 - 17,684.80)^2 = 1,102.24$	$(17,718 - 17,705)^2 = 169$
12.	17,707	$(17,707 - 17,684.80)^2 = 492.84$	$(17,707 - 17,705)^2 = 4$
13.	17,703	$(17,703 - 17,684.80)^2 = 331.24$	$(17,703 - 17,705)^2 = 4$
14.	17,649	$(17,649 - 17,684.80)^2 = 1,281.64$	$(17,649 - 17,705)^2 = 3,136$
15.	17,692	$(17,692 - 17,684.80)^2 = 51.84$	$(17,692 - 17,705)^2 = 169$
16.	17,736	$(17,736 - 17,684.80)^2 = 2,621.44$	$(17,736 - 17,705)^2 = 961$
17.	17,654	$(17,654 - 17,684.80)^2 = 948.64$	$(17,654 - 17,705)^2 = 2,601$
18.	17,684	$(17,684 - 17,684.80)^2 = 0.64$	$(17,684 - 17,705)^2 = 441$
19.	17,750	$(17,750 - 17,684.80)^2 = 4,251.04$	$(17,750 - 17,705)^2 = 2,025$
20.	17,678	$(17,678 - 17,684.80)^2 = 46.24$	$(17,678 - 17,705)^2 = 729$
21.	17,633	$(17,633 - 17,684.80)^2 = 2,683.24$	$(17,633 - 17,705)^2 = 5,184$
22.	17,720	$(17,720 - 17,684.80)^2 = 1,239.04$	$(17,720 - 17,705)^2 = 225$
23.	17,669	$(17,669 - 17,684.80)^2 = 249.64$	$(17,669 - 17,705)^2 = 1,296$
24.	17,723	$(17,723 - 17,684.80)^2 = 1,459.24$	$(17,723 - 17,705)^2 = 324$
25.	17,674	$(17,674 - 17,684.80)^2 = 116.64$	$(17,674 - 17,705)^2 = 961$
<i>Totals</i>	442,120	27,936.00	38,137.00

$\bar{C}_T(g) = \frac{442,120}{25} = 17,684.80 \approx \mathbf{17,685}$	$C_S(g) = \mathbf{17,705}$
$\sqrt{V(1)_g} = \sqrt{\frac{27,936}{25}} = 33.43 \approx \mathbf{33}$	$\sqrt{V(2)_g} = \sqrt{\frac{38,137}{25}} = 39.06 \approx \mathbf{39}$
$RV(1)_g = \frac{\sqrt{V(1)_g}}{\bar{C}_T(g)} = 0.00189 \approx \mathbf{0.002}$	$RV(2)_g = \frac{\sqrt{V(2)_g}}{C_S(g)} = 0.00221 \approx \mathbf{0.002}$

Figure 1

Jurisdiction	District	IDEAL POPULATION	AVERV(1)
Rhode Island	CD-01	526,283.50	0.011
Rhode Island	CD-02	526,283.50	0.016
Rhode Island	SLDU-01	27,699.10	0.062
Rhode Island	SLDU-02	27,699.10	0.093
Rhode Island	SLDU-03	27,699.10	0.079
Rhode Island	SLDU-04	27,699.10	0.075
Rhode Island	SLDL-01	14,034.2	0.118
Rhode Island	SLDL-02	14,034.20	0.082
Rhode Island	SLDL-03	14,034.20	0.090
Rhode Island	SLDL-04	14,034.20	0.100
Panola County, MS	D-01	6,941.40	0.373
Panola County, MS	D-02	6,941.40	0.405
Panola County, MS	D-03	6,941.40	0.347
Panola County, MS	D-04	6,941.40	0.395
Panola County, MS	D-05	6,941.40	0.367
Tate County Schools, MS	D-01	3,764.60	0.439
Tate County Schools, MS	D-02	3,764.60	0.508
Tate County Schools, MS	D-03	3,764.60	0.522
Tate County Schools, MS	D-04	3,764.60	0.523
Tate County Schools, MS	D-05	3,764.60	0.568
Tylertown, MS	D-01	402.25	0.667
Tylertown, MS	D-02	402.25	0.644
Tylertown, MS	D-03	402.25	0.491
Tylertown, MS	D-04	402.25	0.832

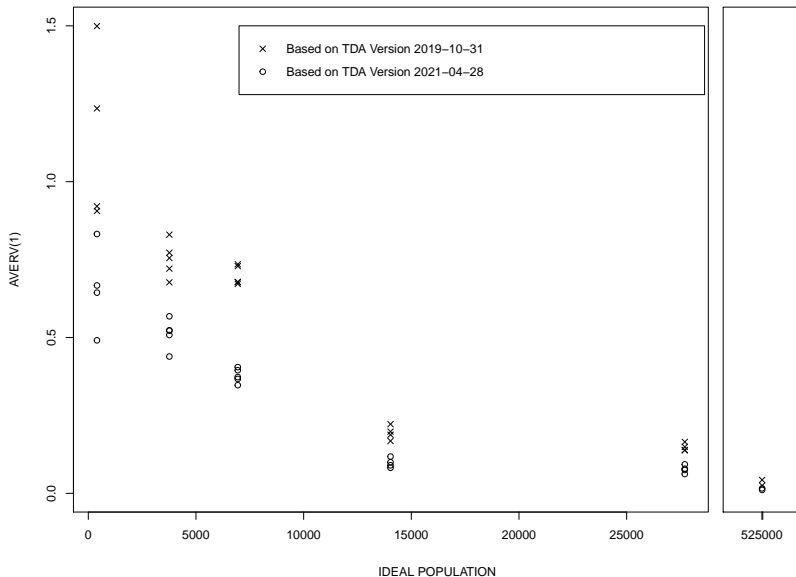
Plot of AVERV(1) for IDEAL POPULATION Values Noted Above





## II.8. CONCLUDING REMARKS FOR PART II

Figure 2



**THANK YOU!**